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| 09/871,776      | 06/01/2001  | Bogdan Kosanovic     | TI-32145            | 3088             |

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EXAMINER

TANG, KENNETH

ART UNIT PAPER NUMBER

2127

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

## Application No.

09/871,776

## Applicant(s)

KOSANOVIC, BOGDAN

## Examiner

Kenneth Tang

## Art Unit

2127

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 6/1/01.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Claims 1-13 are presented for examination.

#### ***Claim Objections***

2. Claim 11 refers to a parent claim 9 as well as a parent claim 19 (which doesn't exist).

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 9-13 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention:

- a. In claim 9, the term "jth instance of the kth function" is indefinite because it is not made explicitly clear in the claim language whether or not this term entails a one to one relationship between an instance to a function. In addition, it is unclear whether the value of j is equal to the value of k or if the number of total instances does not equal the number of total functions. Furthermore, it is not made explicitly clear in the claim language if j and k are integers, variables, maximum number of a range, etc.

- b. In claim 9, the term “adding an estimate” in line 24 is indefinite because it is not made explicitly clear whether this estimate is the same as the estimate in line 12 or if a new estimate is being introduced.
- c. Claim 11 is indefinite because it refers to a parent claim 9 as well as a parent claim 19 (which doesn’t exist).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**4. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Robertazzi et al. (hereinafter Robertazzi) (US 6,370,560 B1).**

5. As to claim 1, Robertazzi teaches an apparatus for allocating a processing resources to functions in a queue waiting to be executed (*col. 5, lines 18-22*), comprising:

a capacity determining means for determining an amount of the processor resource available to be assigned (*col. 6, lines 20-24*);

a load determining means for determining an amount of the resource needed for each function waiting in the queue to execute (*col. 3, lines 3-4, col. 6, lines 20-33*);

a prioritization means for prioritizing each of the functions in a queue waiting to be executed (*col. 5, lines 52-58*); and

an allocating means, which receives information from said capacity determining

Art Unit: 2127

means, said load determining means, and said prioritization means, for allocating the available resource to the functions based on a hierarchical priority scheme (*col. 2, lines 52-62, col. 5, lines 52-58*).

As stated before, Robertazzi teaches a load determining means for determining an amount of the resource needed for each function waiting in the queue to execute (*col. 3, lines 3-4, col. 6, lines 20-33*) but fails to explicitly teach that this amount determined is an estimate. However, it is common knowledge to one of ordinary skill in the art that that amount values could be estimated. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the feature of determining estimated values to the existing system of Robertazzi because this would increase the effectiveness and accuracy of the allocation based on priority. From being able to know the estimated/expected/predicted amount before the allocation occurs, better planning can be performed.

6. As to claim 2, Robertazzi teaches wherein:

the functions are decomposed elements of a more complex process and do not require the same amount of resource to execute (*col. 2, lines 57-60, and col. 1, lines 64-67 through col. 2, lines 1-9*).

7. As to claim 3, Robertazzi fails to explicitly teach wherein multiple instances of any function within the process may be invoked by the processor to execute concurrently. However, it is well known in the art that multiple instances of any function within the process may be invoked by the processor to execute concurrently. It would have been

Art Unit: 2127

obvious to one of ordinary skill in the art at the time the invention was made to include the feature of invoking and concurrently executing multiple instances for functions in order to utilize the benefits of object oriented programming.

8. As to claim 4, Robertazzi teaches wherein:

each of the functions within the process is assigned a separate priority within the hierarchical priority scheme (*col. 2, lines 52-62, col. 5, lines 52-58*).

9. As to claim 5, it is rejected for the same reasons as stated in the rejections of claims 3 and 4.

10. As to claim 6, Robertazzi teaches further comprising:

an assigning means, in communication with said allocation means, for assigning a resource throttling (reducing) value to each function waiting in the queue to be executed, wherein the throttling value determines the reduction of the resource allocated to each of the functions (*col. 9, lines 11-25*).

11. As to claim 7, Robertazzi teaches wherein:

the allocation of the available resource to the functions waiting in the queue is conducted to optimize the amount of the resource assigned to these functions (*col. 5, lines 52-55, col. 9, lines 11-25*).

Art Unit: 2127

12. As to claim 8, it is rejected for the same reasons as stated in the rejections of claims 3 and 7.

13. **Claims 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Robertazzi et al. (hereinafter Robertazzi) (US 6,370,560 B1) in view of Callahan et al. (hereinafter Callahan) (US 4,056,846).**

14. As to claim 9, Robertazzi teaches an apparatus for allocating a processing resource to functions in a queue waiting to be executed (*col. 5, lines 18-22*), comprising:

a capacity determining means for determining an amount of the processor resource available to be assigned (*col. 6, lines 20-24*);

a load determining means for determining an amount of the resource needed for each function waiting in the queue to execute (*col. 3, lines 3-4, col. 6, lines 20-33*);

an allocating means, which receives information from said capacity determining means and said load determining means, for allocating the available resource to the functions based on a hierarchical priority scheme (*col. 2, lines 52-62, col. 5, lines 52-58*).

15. As stated before, Robertazzi teaches a load determining means for determining an amount of the resource needed for each function waiting in the queue to execute (*col. 3, lines 3-4, col. 6, lines 20-33*) but fails to explicitly teach that this amount determined is an estimate. However, it is common knowledge to one of ordinary skill in the art that that amount values could be estimated. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the feature of determining estimated

values to the existing system of Robertazzi because this would increase the effectiveness and accuracy of the allocation based on priority. From being able to know the estimated/expected/predicted amount before the allocation occurs, better planning can be performed.

16. In addition, Robertazzi fails to explicitly teach wherein said load determining means calculates a product, for each of  $j$  instances of  $k$  functions, assigning a value of either zero or one to a multiplicand associated with the  $j$ th instance of the  $k$ th function; and multiplying the estimated amount of resource needed to support the execution of the  $j$ th instance of the  $k$ th function by its associated multiplicand and assigning the result to the product associated with the  $j$ th instance of the  $k$ th function; and said load determining means calculates a sub-total sum, for each of the  $j$  instances, obtained by (d) summing together the products associated with each of the  $k$  functions of the  $j$ th instance.

17. However, one of ordinary skill in the art would be able to see that this limitation simply involves summing together all the instances that apply (the instances that are not applied are multiplied by 0). It would have been obvious to one of ordinary skill in the art at the time the invention was made to sum together only the instances that apply in order to increase the accuracy of the system by knowing the available capacity of the resources.

18. In addition, Robertazzi fails to explicitly teach using the load determination means to support background processing. However, Callahan teaches load balancing which supports background processing and that it is advantageous because instructions that are common are executed together, which increases efficiency (*col. 1, lines 52-68*). It would have been obvious to one of ordinary skill in the art at the time the invention



Art Unit: 2127

was made to include the feature of load balancing which supports background processing to the existing system of Robertazzi in order to gain the advantage mentioned above.

19. As to claim 10, it is rejected for the same reasons as stated in the rejection of claim 9. In addition, Robertazzi teaches a hierarchical priority scheme (*col. 2, lines 52-62, col. 5, lines 52-58*).

20. As to claim 11, it is rejected for the same reasons as stated in the rejection of claims 9 and 10. In addition, Robertazzi teaches the load determining means occurring for a number of sequential time periods (*col. 1, lines 35-48*).

21. As to claim 12, it is rejected for the same reasons as stated in the rejection of claim 9. In addition, Robertazzi teaches wherein said load determining means establishes a variable length time period that is no longer than the period needed to execute (*col. 2, lines 47-49 and col. 3, lines 9-12*).

22. As to claim 13, it is rejected for the same reasons as stated in the rejection of claim 9. In addition, Robertazzi teaches said prioritization means assigns increasingly higher priority in accordance with an increasingly greater number of time periods that have passed (*col. 2, lines 52-62, col. 5, lines 52-58*).

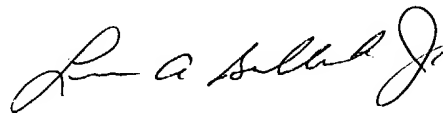
Art Unit: 2127

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth Tang whose telephone number is (703) 305-5334. The examiner can normally be reached on 8:30AM - 7:00PM, Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (703) 305-9678. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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